

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph appearing at page 18, line 26, through page 19, line 2, as follows:

Additional bipolar plates and MEAs may be added to the cassette assembly, with or without the addition of cooling layers depending upon the output requirements for the finished fuel cell. Typically, fuel cells having a plurality of composite MEAs comprise a repeat unit having a between 1 and about 10 composite MEAs interposed between coolant layers. More typically there are between about 2 and about 4 composite MEAs interposed between coolant layers which strikes a balance between maximizing power density and maintaining a sufficient heat removal throughout the cassette or stack.

Please amend the paragraph appearing at page 22, line 26, through page 19, line 2, as follows:

In another preferred embodiment, the invention provides cassettes having sealing channels **23** which are molded into the gasket **52** of the composite MEA **50**. This allows significant simplification of the other portions of the stack, particularly simplification of the non-porous separator plate. As depicted in **FIG. 6**, the composite MEA allows the use of discrete flow fields **60** and one separator plate **62** in the place of a bipolar plate, where each flow field is situated within a space defined by the surface of the MEA, the surface of the separator plate and the height of the elevated ridges and/or raised channels of the gasket portion of the composite MEA. Rather than forming an edge gasket around the MEA that is flat, composite membranes are prepared which comprise a gasket **52** that incorporates elevated ridges and/or the raised channels, i.e., sealing channels **23**, into the gasket of the composite MEA which regulate the flow of sealant into and through the assembled stack during the sealing process. A stack can subsequently be made with simple flow fields **60** (e.g. metal screens) and flat separator plates **62** (e.g. sheet stock). Alternatively, a flat plate can be stamped to

provide one or more flow fields in conjunction with a separator. During the fabrication of the cassette the sealant is introduced from the edges of the stack (or through sealant holes in the stack components). The sealant travels through the channels **23** incorporated in the gasket **52** of the MEA and/or until blocked by further infiltration into the stack by a seal formed between an elevated ridge and an opposing surface (e.g., a bipolar plate or a separator plate). Bonding by setting, hardening, solidifying, cooling or other curing process results in a seal between the ~~to the~~ gasket portion of the composite MEA and the separator plate **62**. See, e.g., **FIG. 6** and **FIG. 11**.